

WHAT IS CLAIMED IS:

- 5 1. An at least partially coated fiber strand comprising a plurality of glass fibers having a coating composition on at least a portion of at least one of the glass fibers, the coating composition comprising at least one coating comprising greater than 20 weight percent on a total solids basis of a plurality of particles selected from inorganic particles, organic hollow particles, composite particles, and mixtures of any of the foregoing, wherein the plurality of particles have a Mohs' hardness value which does not exceed the Mohs' hardness value of the glass fibers.
- 10 2. An at least partially coated fiber strand according to claim 1, wherein the coating composition is a resin compatible coating composition.
- 15 3. An at least partially coated fiber strand according to claim 1, wherein the plurality of particles have a Mohs' hardness value ranging from 0.5 to 6.
- 20 4. An at least partially coated fiber strand according to claim 1, wherein the coating composition is a residue of at least one aqueous coating composition.
5. An at least partially coated fiber strand according to claim 1, wherein the coating composition is a powdered coating composition.
- 25 6. An at least partially coated fiber strand according to claim 1, wherein the plurality of glass fibers are selected from E-glass fibers, D-glass fibers, S-glass fibers, Q-glass fibers, E-glass derivative fibers, and mixtures of any of the foregoing.
7. An at least partially coated fiber strand according to claim 6, wherein the plurality of glass fibers are selected from E-glass fibers.
- 30 8. An at least partially coated fiber strand according to claim 6, wherein the plurality of glass fibers are selected from E-glass derivative fibers.

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9. An at least partially coated fiber strand according to claim 1, wherein the inorganic particles are selected from boron nitride, graphite, molybdenum disulfide, talc, mica, kaolinite, gypsum, calcium carbonate, calcium fluoride, zinc oxide, aluminum, copper, iron, gold, nickel, palladium, platinum, silver, zinc sulfide, and mixtures of any of the foregoing.

10. An at least partially coated fiber strand according to claim 9, wherein the inorganic particles comprise at least one particle selected from boron nitride particles.

11. An at least partially coated fiber strand according to claim 10, wherein the inorganic particles comprise at least one particle selected from hexagonal crystal structure boron nitride particles.

12. An at least partially coated fiber strand according to claim 1, wherein the organic hollow particles are selected from acrylic polymers.

13. An at least partially coated fiber strand according to claim 12, wherein the acrylic polymers are selected from copolymers formed from at least one styrene monomer and at least one acrylic acid monomer, and polymers formed from at least one methacrylate monomer.

14. An at least partially coated fiber strand according to claim 1, wherein the composite particles are selected from particles that have a hardness at their surface that is different from the hardness of the internal portions of the particle beneath its surface.

15. An at least partially coated fiber strand according to claim 14, wherein the composite particles are selected from particles formed from a primary material that is coated, clad or encapsulated with at least one secondary material.

16. An at least partially coated fiber strand according to claim 14, wherein the composite particles are selected from particles formed from a primary material that is coated, clad or encapsulated with a differing form of the primary material.

5 17. An at least partially coated fiber strand according to claim 1, wherein the composite particles are selected from particles formed from an inorganic material coated with a material selected from silicas, carbonates and nanoclays.

10 18. An at least partially coated fiber strand according to claim 1, wherein the plurality of particles are present in the coating composition in an amount ranging from 25 to 80 weight percent on a total solids basis.

15 19. An at least partially coated fiber strand according to claim 18, wherein the plurality of particles are present in the coating composition in an amount ranging from 50 to 60 weight percent on a total solids basis.

20 20. An at least partially coated fiber strand according to claim 1, wherein the coating composition further comprises at least one lubricious material different from said plurality of particles.

21. An at least partially coated fiber strand according to claim 1, wherein the coating composition further comprises at least one film-forming material.

25 22. An at least partially coated fiber strand according to claim 1, wherein the coating composition comprises a primary coating of at least one sizing composition on at least a portion of a surface of at least one of the glass fibers and a secondary coating composition, on at least a portion of the primary coating, comprising the plurality of particles having a Mohs' hardness value which does not exceed the Mohs' hardness value of the glass fibers.

30 23. An at least partially coated fiber strand according to claim 1, wherein the coating composition comprises a primary coating of at least one sizing

composition on at least a portion of a surface of at least one of the glass fiber, a secondary coating on at least a portion of the primary coating, and a tertiary coating composition, on at least a portion of the secondary coating, comprising the plurality of particles having a Mohs' hardness value which does not exceed the Mohs'

5 hardness value of the glass fibers.

24. An at least partially coated fiber strand according to claim 1, wherein the coating composition comprises a resin reactive diluent.

10 25. An at least partially coated fiber strand according to claim 24, wherein the resin reactive diluent is a lubricant comprising one or more functional groups capable of reacting with an epoxy resin system and selected from the group consisting of amine groups, alcohol groups, anhydride groups, acid groups and epoxy groups.

15 26. An at least partially coated fiber strand according to claim 1, wherein the plurality of lamellar particles have a thermal conductivity of at least 1 Watt per meter °K at a temperature of 300 °K.

20 27. An at least partially coated fiber strand according to claim 26, wherein the plurality of lamellar particles have a thermal conductivity ranging from 5 to 2000 Watts per meter °K at a temperature of 300 °K.

25 28. An at least partially coated fiber strand comprising a plurality of glass fibers having a coating composition on at least a portion of a surface of at least one of said glass fibers, the coating composition comprising :

(a) a plurality of hollow organic particles having a Mohs' hardness value which does not exceed the Mohs' hardness value of the glass fibers; and

30 (b) at least one polymeric material different from at least one of the hollow organic particles.

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29. An at least partially coated fiber strand according to claim 28, wherein the coating composition is a resin compatible coating composition.

30. An at least partially coated fiber strand according to claim 28, wherein the plurality of particles have a Mohs' hardness value ranging from 0.5 to 6.

31. An at least partially coated fiber strand according to claim 28, wherein the at least one polymeric material is selected from polymeric organic materials, polymeric inorganic materials, and mixtures thereof.

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32. A glass fiber comprising a coating composition comprising at least one coating comprising greater than 20 weight percent on a total solids basis of a plurality of particles selected from inorganic particles, organic hollow particles, and composite particles, wherein the plurality of particles have a Mohs' hardness value which does not exceed the Mohs' hardness value of the glass fiber.

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33. A fiber according to claim 32, wherein the coating composition is a resin compatible coating composition.

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34. A fiber according to claim 32, wherein the plurality of particles have a Mohs' hardness value ranging from 0.5 to 6.

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35. A glass fiber comprising a coating composition comprising:

- (a) a plurality of hollow organic particles having a Mohs' hardness value which does not exceed the Mohs' hardness value of the glass fiber; and
- (b) at least one polymeric material different from at least one of the hollow organic particles.

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36. A fiber according to claim 35, wherein the coating composition is a resin compatible coating composition.

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37. A fiber according to claim 35, wherein the plurality of particles have a Mohs' hardness value ranging from 0.5 to 6.

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